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Brisbane Australia

This is the author's version of a work that was submitted/accepted for publication in the following source:

Frazer, John H. (2010) Intelligent physical modelling systems - Why? In *4th International Conference on Tangible, Embedded, and Embodied Interaction*, 25-27 January 2010, MIT Media Lab, Cambridge, Mass.

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<http://dx.doi.org/10.1145/1709886.1709887>

Opening Keynote

Intelligent Physical Modelling Systems – Why?

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Abstract

“What did you think you were doing?” Was the question posed by the conference organizers to me as the inventor and constructor of the first working Tangible Interfaces over 40 years ago. I think the question was intended to encourage me to talk about the underlying ideas and intentionality rather than describe an endless sequence of electronic bricks and that is what I shall do in this presentation.

In the sixties the prevalent idea for a graphics interface was an analogue with sketching which was to somehow be understood by the computer as three dimensional form. I rebelled against this notion for reasons which I will explain in the presentation and instead came up with tangible physical three dimensional intelligent objects.

I called these first prototypes “Intelligent Physical Modelling Systems” which is a really dumb name for an obvious concept. I am eternally grateful to Hiroshi Ishii for coining the term “Tangible User Interfaces” - the same idea but with a much smarter name.

Another motivator was user involvement in the design process, and that led to the Generator (1979) project with Cedric Price for the world’s first intelligent building capable of organizing itself in response to the appetites of the users. The working model of that project is in MoMA. And the same motivation led to a self builders design kit (1980) for Walter Segal which facilitated self-builders to design their own houses.

And indeed as the organizer’s question implied, the motivation and intentionality of these projects developed over the years in step with advancing technology. The speaker will attempt to articulate these changes with medical, psychological and educational examples. Much of this later work indeed stemming from the Media Lab where we are talking.

Related topics such as “tangible thinking” and “intelligent teacups” will be introduced and the presentation will end with some speculations for the future.

The presentation will be given against a background of images of early prototypes many of which have never been previously published.

Categories & Subject Descriptors: H.5.m Miscellaneous

General Terms: Design

Bio

Professor John Hamilton Frazer holds the Chair of Design Science at Queensland University of Technology where he is in both the Faculty of Science and the Faculty of Engineering and where previously he was the Head of the School of Design. He pioneered the development of intelligent and interactive building design systems and evolutionary design computation and founded and directed the award winning Autographics software development company. He trained as an architect at the independent Architectural Association in London and started his career as a lecturer at Cambridge University and the Architectural Association. He was Head of School and Professor at the University of Ulster before moving to the Hong Kong Polytechnic University where he was Swire Chair Professor and Head of School of Design. He was then appointed as International Research Coordinator for the Gehry Technologies Digital Practice Ecosystem. He holds honorary Professorships from the Universities of Dalian, Fudan and Shandong in China as well as being a Visiting Professor at the Universities of Salford and Brighton. He is an elected Fellow of the Royal Society of Arts and a Fellow the Chartered Society of Designers. His first book, *An Evolutionary Architecture*, 1995, is regarded as the seminal work in the field.